



Aalborg Universitet

AALBORG UNIVERSITY
DENMARK

Graphic Notation as a Tool in Describing and Analyzing Music Therapy Improvisations

Bergstrøm-Nielsen, Carl

Published in:
Music Therapy

Publication date:
1993

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Bergstrøm-Nielsen, C. (1993). Graphic Notation as a Tool in Describing and Analyzing Music Therapy Improvisations. *Music Therapy*, 12(1), 40-58.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy

If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

The present article was first printed in Music Therapy (official publication of the American Association for Music Therapy, AAMT) 1993, Vol. 12, No. 1, p.40-58. This 2008 pdf edition is not an update, although a few amendments were made in note 1 and in adding Figure 4 in color.

Graphic Notation as a Tool in Describing and Analyzing Music Therapy Improvisations

CARL BERGSTROEM-NIELSEN
AALBORG UNIVERSITY, DENMARK

This article presents a method of graphic notation-"aural scores"-that facilitates memorizing and analyzing improvised music therapy processes. The ways in which graphic notation can represent aspects of music not captured by conventional music notation are discussed. The author's method of training music therapy students in creating these notations is outlined. An elaborate example of a notation is shown for music taken from a well-known clinical recording from Nordoff and Robbins' (1977) text, *Creative Music Therapy*. In addition, other examples by students are cited and general issues, including the epistemology and cultural status of musical notation, are discussed.

Introduction

Graphic notation is a way of notating music with symbols different from those used in traditional notation. The development of graphic notation for music was initiated by experimental composers in the 1950s. Well-known examples include works by composers belonging to the New York School, such as Morton Feldman, Earle Brown, John Cage, Christian Wolff, as well as Robert Moran. Some European composers especially known for their graphic notations are Sylvano Busotti, Cornelius Cardew, Roman Haubenstock-Ramati, Anesthis Logothetis, and Karlheinz Stockhausen. The types of experimental music scores have ranged from a simple picture presented without further explanation to stimulate an improvisation, to detailed sets of signs with precise instructions¹. Among composers, it seems not unusual to use graphic sketches when outlining a composition, even for some of those who always work compositions out in traditional notation.

Music educators in the late 1960s took up the idea of using new symbols for music, creating what is referred to as "aural scores"-the purpose of which was not to tell the musician what to play but to serve as a map of the musical territory. In this way, the score functioned as an analysis tool-for studying both classic and contemporary music-rather than as something from which to generate music. Training in musicological analysis was usually a part of these educators' backgrounds. Although to a large extent musicological analysis is verbally based, certain graphic representations-such as visual treatment of formulas, tables, and graphs-do also have an influence. Usually, aural scores were simpler than standard notes and staves and had more of an iconic

¹ For an overview and discussion of relevant literature on notation, see my bibliography "Experimental Improvisation Practise and Notation 1945-1999" with addenda, at the www.vbn.dk site.

character. Thus, unlike traditional scores, they could easily be understood, even by those who did not read music².

My method of graphic notation for music therapy improvisations has been developed at the Music Therapy Program at the University Centre in Aalborg in Denmark. This Program was founded in 1982 by Benedikte Barth Scheiby (currently an adjunct faculty member in New York University's Music Therapy Program) and Inge Nygaard Pedersen (who is still in Aalborg). Both studied musicology in Copenhagen and music therapy in Herdecke, Germany. The therapy training is primarily analytic and based on the client and therapist playing freely improvised music together. From the outset of the Program at Aalborg, graphic notation has been a part of the curriculum. Since 1986 I have taught the subject of graphic notation regularly and have developed systematic methods of teaching it. Standards for the competency level that students must achieve have been established in cooperation with colleagues, and the courses have continued to develop, with the creative approach of the students being an important resource. To my knowledge, this is the only university course in the world where graphic notation is taught as a separate subject.³ There are presently two courses consisting of ten lessons each. The initial course is offered in the third year of this four-year degree program.

The symbol (or sign) language of each graphic notation is individually designed by the student. It is influenced both by the student's personality and the improvisation in question. "Borrowing" from other people's ideas, just as artists do, is acceptable; a general standardization is not encouraged or desirable, since it would contradict the individual nature of improvisations.

In addition to the courses specifically on graphic notation for aural scores, we also employ graphic notations in an improvisation course where students function as composers and use the scores as "recipes" for improvised music. This compositional technique alternates with training in free group improvisation within a course on "Intuitive Music."

Graphic notations can serve as memory aids in recalling what was played in a therapy session. Memorizing itself should not be underestimated in such a fluent medium as Improvised music. As an example, consider Figure 1, "Stenographic graphic notation."

² A famous aural score is by Rainer Wehinger: Ligeti, Artikulation-Elektronische Musik. Eine Hoerpartitur. Mainz, Edition Schott, 1970.

³ Dr. Gego Tisera at the Instituto Superior del Parana at Rosario, Argentina, reports of an "analog representation" being taught during the three-year course in Music Therapy. Should readers know of other instances, I would be happy to know about them (my address: Teglgaaardsvej 649, DK-3050 Humlebaek, Denmark) [2008 note: you may also use the email form at <http://hjem.get2net.dk/intuitive/imal.htm>]

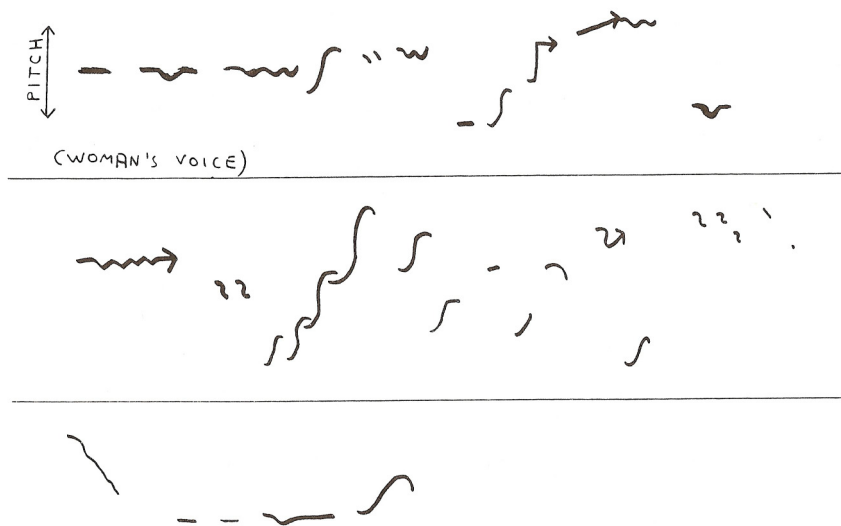


Figure 1. Stenographic graphic notation.

This notation was made during an improvised solo vocal performance (entitled "Vault") and only re-drawn, not revised, to illustrate this article. In this example, up and down on the page represents high and low pitches, and time (as experienced) moves from left to right. Arrows are used to suggest an accentuated, sustained tone. This figure is a good example of ways in which graphic notations can convey an outline of the music without lengthy listening to tapes or verbal explanations.

On a deeper level, creating a notation can serve to clarify the therapist's own perception of the music, its clinical interpretation, and which steps to take next. Applying the listening discipline outlined in this article-involving both description and subsequent reflection-sharpens one's musical perceptions as well as reveals their limitations. Clinical interpretation benefits from securing and broadening the basis for such judgments in the music itself. Reactions to the client that come to the therapist in the form of images are further clarified through the process of creating an appropriate representational system.

In creating a graphic notation, the therapist explores the "landscape" of the client's music. The combined analytic, interpretive, and reflective efforts in this activity result in the creation of a map of this "landscape." Representing the temporal aspects of music in a spatial manner allows the musical whole to be apprehended. This can provide insight into the therapeutic process and assist the therapist in clinical decision-making.

Finally, graphic notations are well-suited to describe complex sounds and processes and are highly adaptable to the unique characteristics of individual selections of music. The more improvised and the less "normal" or "traditional," in a tonal-rhythmic sense, the music is, the greater the need to develop new means of description.

Training Method

At the end of the notation courses, students are equipped to make original notations with adequate symbols and structure, as well as to describe how the music has been perceived. A clear explanation of signs is also expected. There is a written examination lasting three hours where each student is left alone with a piano, a tape recorder, and a tape containing a music therapy example lasting not longer than three minutes. The student is required to make both a graphic notation and a note-transcription of a section of melody and / or rhythm from the example (the latter having a weight of one-third when the results are graded).

Creative and analytic abilities are required in this work with graphic notation, and their employment should be well integrated. This method contains elements from visual arts training; musicological analysis; and creative, therapeutic techniques. Although the work can be quite demanding, and it can be difficult to create symbols that adequately represent unique sounds, it is rare that students find that they cannot devise an adequate representation. Because of the intense creative and analytic efforts demanded by this work-analogous to the intense work of composers and other creative artists-seminars do not last more than three hours per day (with breaks).

Following are the key notational elements taught in the courses, presented here in the way that they are presented to the students, with additional explanatory comments for the purposes of this article:



Figure 2. Automatic drawing; theme of "excitement".

Automatic Drawing (See Figure 2)

Automatic drawing means letting drawing take place in a way analogous to the classic practice of free associations, letting an uninhibited stream of consciousness flow along. This helps students get into contact with their own expressive resources in drawing. As with most of the exercises taught in this course, the students share their results afterward.

While grasping a writing utensil, let your hand act on its own with your eyes closed. First, contemplate and approach the writing/drawing situation by being aware of your hand. You may become aware of various positive and negative feelings about it. Experiment with allowing your hand to follow its inclination to move. Later, make further hand-with-pen-on-paper-movement-improvisations with defined themes, such as creating something excited or something calm.

Results show that these extremes become clearly expressed as well as individually differentiated for each person. Even a simple line has elementary, expressive powers to convey feelings and states of body and mind. This points to the fact that writing and drawing are primarily marks left from movement, which itself is expressive.

Sign Brainstorming

The invention and designing of symbols individually created for specific music plays an important role in making graphic notations. This exercise helps students become aware of both the wealth of possible sets of symbols that may be taken as an inspiration and of special preferences that might be cultivated more systematically on an individual basis. Any known symbol or set of symbols that can be recognized and used repeatedly is relevant.

Brainstorm all the sets of signs you can imagine! That is, try to write down a list of categories and to draw as many different ones as possible. Resources may include: foreign language letters; forms derived from botany (e.g., plant shapes); symbols used in navigation, aviation and topoographic maps; technical schemes and diagrams; sign languages; pictograms or hieroglyphs; and, imaginary sign language, such as used in modern painting. The "stealing of ideas," which is artistically quite permissible, is expressly encouraged. Free inventions are, however, also possible.

Making Fast Sketches

This is perhaps the graphic notation technique music therapists will use most often.

A taped music example will be played only once, and you will have to make the most of that! Simply use the lines, shapes and simple signs that come into your pen as you listen, while trying to portray the process in a rough outline.

For Advanced Students:

Listen to the taped example first and then sketch the notation by memory. This is, in fact, a realistic situation with music you might participate in if there is no recording, or in circumstances in which you would like to make a short note after the playing.



Figure 3. Examples of symbols for specific sounds.

Making Symbols for Selected Sounds (See Figure 3.)

Symbols should refer to the sound on a descriptive level, but symbols may have other functions as well.

A music example will be played several times. Freely select some sounds and sketch symbols for them. Arbitrary, schematic signs are acceptable, as well as picture-like ones. However, all symbols must be simple to draw so that you can repeat them easily.

The symbols used for xylophone, piano, and drum at the bottom right of Figure 3 are examples of schematic signs. The snake shown at the top of Figure 3 may illustrate melodic movement going down and becomes thus both descriptive of the sound and of a symbolic meaning of this element within the music as a whole. If both descriptive and illustrative aspects can be combined, it helps the reader of the notation to catch overall structure, as well as some details, at a glance.

Using the Co-ordinate System

Use of the co-ordinate notation system is a standard that is easy to employ. This system retains some elements from traditional notation, and it calls for a detailed description of what is happening in the music. Students are asked to notate selected music examples of varying difficulty, primarily using the ear as a measuring instrument, although in some cases the results are compared with scores and computer printouts. In fact, some sequencer programs are equipped to create exactly this kind of notation, even allowing the option of building up the notation first and having it played afterward!

Typically, the horizontal axis will represent time and the vertical axis, pitch. The only signs that you should use are dots, lines of varying length, blocks, or simple textures (the latter for clusters, chords and/or tight textures in the music).

For Advanced Students:

Let the vertical axis represent a musical parameter other than pitch. For example, sound density and/or timbre can be more important to the structure of improvisations, especially those that are freely atonal. Instead of a coordinative system, you might consider other structures, such as a spiral, labyrinth, or tree when such a design reflects important aspects of the music.

Using a suitable taped example, make a notation emphasizing overview and different design of sections. You will need to assess how many sections to make. The contents of individual sections should not be worked out in detail here. They could be simple and pictogram-like. Or just sketches. The main thing here is how you make sections different. Changing key signatures for each section is also a possibility. (See Figure 4.)

Jane Pedersen

STYRKE

ET LÅ-MIG-VÆRE-RUM
MED LYD KAN JEG HOLDE
DIG "UDE"!

- -- HARMONIKA
- -- KLAVER

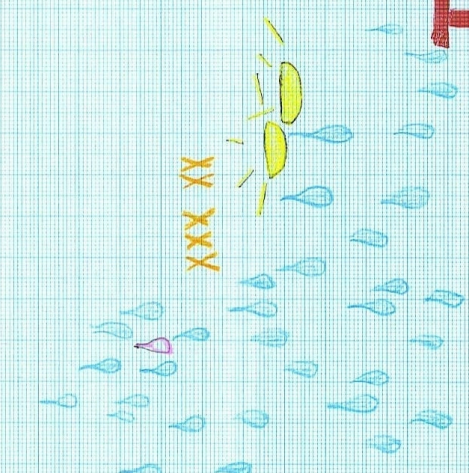
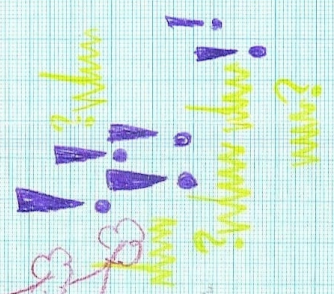
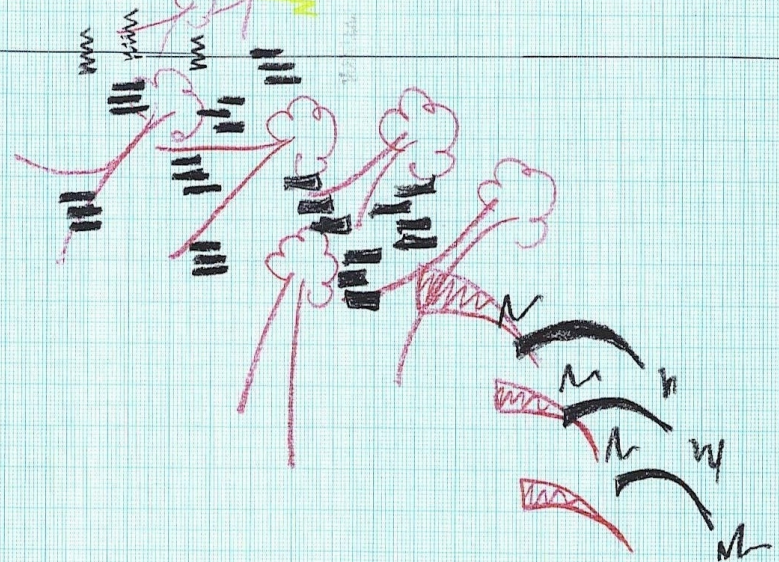
STOLTTHED

- -- HARMONIKA
- -- KLAVER

VENODIG SAGEN

- KLAVER

- KLAVER
- klokkeskål
- klokke/diale



TIP

Ca. 60 sek.

Ca. 45 sek.

Ca. 60 sek.

Figure 4. Notation example by student Jane Pedersen (see a translated version below.)

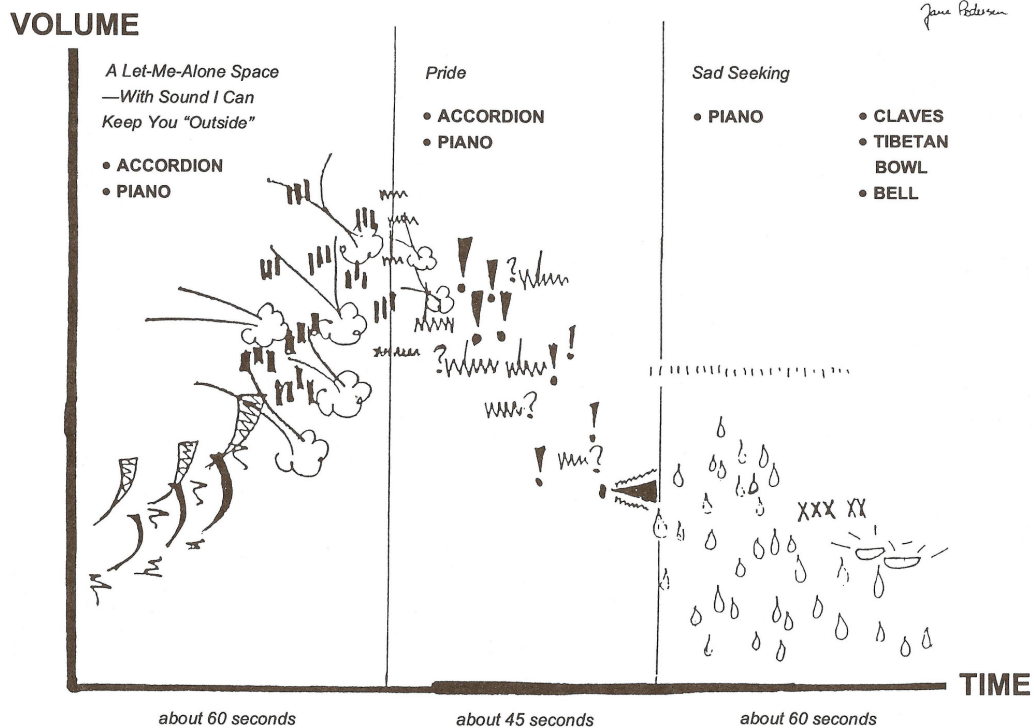
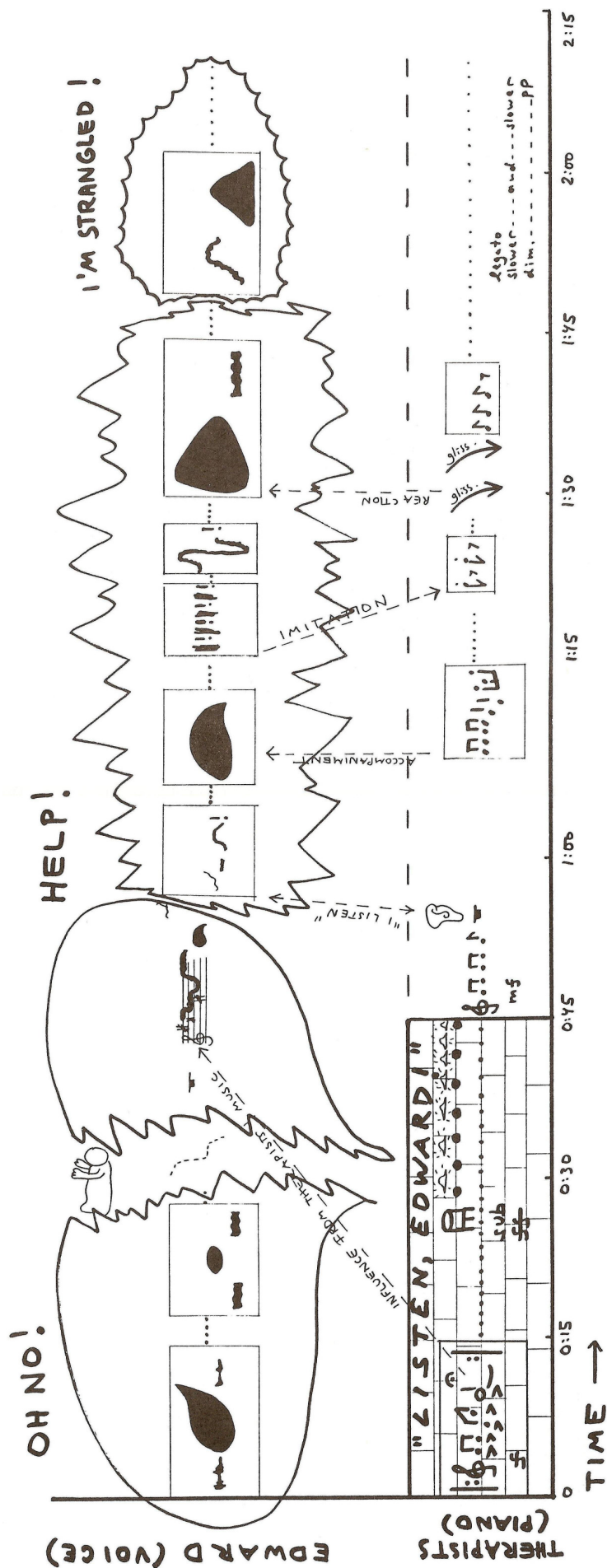


Figure 4 (translated version).

Dividing the Notation into Sections

This technique is usually beneficial to the reader's impression of the notation as a whole, even if simplifications and generalizations have to be purposely made. (See the scores in Figures 4 and 5.)



EXPLANATION OF SIGNS

Various screams, seen as noise bands

thin, sharp, infant-like voice

whispering "singing" (with pitch)

compressed, tense voice

pitched voice

goes on, in a manner similar to the contents of the box

drum beating along with piano

Symbol

I PERCEIVE EDWARD'S SOUNDS AS EXPRESSING EMOTIONAL STATES OF PAIN/SORROW, FRUSTRATION/ANGER AND EXHAUSTION/FEELING DESERTED. THEY ARE PROBABLY TYPICAL OF HIS LIFE EXPERIENCE.

THE THERAPISTS MEET EDWARD WITH A FIRM "WALL OF SOUND". LATER, A DIALOGUE IS OPENED. EDWARD SHOWS FAITH AT AN UNCONSCIOUS LEVEL, INDICATED BY THE INCREASING DEGREE OF INTERCHANGE IN THE MUSIC.

Figure 5. Notation of "Edward", session 1.

Analyzing Musical Parameters

This technique consists of analyzing the music with the aim of describing it in relatively objective, strictly descriptive concepts. This makes it possible for students to remember the outline and important events of an improvisation, regardless of whether they are playing or listening. It encourages students to more fully experience and understand improvised music, not only on the affective level but also on the cognitive. It makes the music accessible for memory and reflection, even if it is highly changeable.

Some free improvisations may consist more of "pure sound" than of "traditional musical material," such as harmonically arranged pitches, melodic phrasing, or perceptible symmetric and rondo forms. However, it is possible to differentiate the sound, appreciate its many dimensions and their individual natures, and learn to describe the sound and the way it changes using concepts from contemporary and experimental music. "Parameter" is a property of sound itself, describable as "degree of ..." (John Cage preferred the word "variable" rather than "parameter.") Parameters other than pitches include dynamics, density (how many sounds per time unit), timbre (from soft to hard or dark to light).

Sketch out a parameter description before designing the notation. The sketch may be done in simple verbal terms.

Controlling Varying Degrees of Detail in the Notation

One purpose of this exercise is to increase students' ability to purposely control how detailed the score is to be, in order to avoid the pitfall of getting stuck in endless details.

For Advanced Students:

Make three sketches of the same taped music example focusing first on general texture, then on a group of sounds, and finally on the single sounds. [For the first two, the whole example lasting one minute is used. For the last one, only a fraction of the same example, lasting eight seconds, is used.] Study the very different appearances of the same material.

The Use of Notation to Discern Clinical Themes and Reveal Countertransference

This is a culminating exercise that consists of four phases: (a) listening to a client's musical improvisation repeatedly; (b) making three verbal and/ or graphic sketches that describe the music out of several different forms of awareness; (c) going through a guided reflection; and, (d) finally, forming an opinion of what is important for the client in the improvisation. The purpose is to give a methodic procedure for the interpretation of improvisations; to strengthen listening discipline and awareness; and to make personal predilections, blind spots, and preferences, as well as listening habits, more apparent.

Organize a sheet of paper with three columns according to Fritz Perls' three zones of experience: outer zone (what you sense, what you hear); intermediary zone (thoughts ideas); and, inner zone (feelings, body states, and emotions).⁴ As you listen to the music, sketch verbal and/or graphic notes under each of the three columns. Use the first column to register precisely what you hear, using a strictly descriptive vocabulary (use of parameter terms is recommended). Use the second column to interpret the process as a whole; this may be freely imaginative—maybe in the form of a series of free imaginations. Use the third column to record short characterizations of how you became personally affected by the music.

Questions are then asked of the students to help them detect their awareness of counter-transference—not only in the general sense but also in a specifically musical sense. The specifically musical counter-transference is probably the least recognized. But, in practice, it may be very decisive: the client's approach to music may well differ from the therapist's and possible misunderstandings should be taken into account.

The students are then asked the following questions:

First, generally: In which respect(s) may your description of the client be interpreted as a description of yourself?

Then, musically: In which respect(s) may your description of the music itself be interpreted as describing your own definition of what music is?

Having answered these questions, students are then directed to reflect on what might exist that does not appear in their descriptions and definitions. In this way, they are encouraged to "see around corners"!

Then, additional questions probe further:

Going back to the therapy session and the client in question, think about what you know about the client and the therapy session and about your description in the second column. What, in your fantasies and impressions provoked by the listening, do you think tells something important about what is going on in and with the client?

Check the possibility of revising or modifying this opinion in the light of the critical reflections on counter-transference made earlier.

Then, take the jump to synthesize this into a short verbal, interpretive statement: "I think _____ is happening." This is not to be considered the final truth, but it is a qualified interpretation. [See an example of this in the "Edward" notation, Figure 5.]

⁴ The Danish author Stephen Mathiasen discusses the three zones as a model of reality in *Psykologisk Vækst* (Copenhagen, 1972, p. 57ff). He refers to the following books by Fritz Perls: *Gestalt Therapy Verbatim* (Real People Press, New York, 1969) and *In and Out the Garbage Pail* (Real People Press, New York, 1969).

The interpretative statement can be provided with the notation for the reader to consider. The remaining notes may be useful for the notator when working out a graphic notation.

Notation Examples

The notation by Jane Pedersen (see Figure 4) illustrates the employment of signs that are expressive and that convey a relatively precise meaning as well. The music was taken from a therapy session with a student at Aalborg University. The therapist, Inge Nygaard Pedersen, played the piano while the client played the other instruments. Each sign indicates a specific instrument playing in a specific way. The clouds in the beginning represent a harmonica played with sustained blowing. The teardrops in the last section represent piano tones connected by use of the sustain pedal. The vertical axis represents not pitch but dynamics that follow a rising and descending curve. The structure has been made clear by a division into three sections. The sections have titles: (a) "A let-me-alone-space-with sound I can keep you 'outside!"; (b) "Pride"; (c) "Sad seeking."

Listen to Audio Excerpt #1, Side A, on the tape that accompanies this journal and try to follow the score. You should not expect all of the relevant details to appear in the score, but if you can follow the general outline, then you will understand how the graphic notation has provided an accurate overview of the musical piece.

The notation of "Edward" (see Figure 5) was drawn by the present author to illustrate the "Edward" portion of the audiotape originally included with the Nordoff and Robbins (1977) text, *Creative Music Therapy*.⁵ Edward was a 5-1/2-year-old boy who had been attending the Day-Care Unit for Psychotic Children at the School of Medicine, University of Pennsylvania, for only two weeks prior to his first music therapy session. Play Audio Excerpt #2, Side A, on the tape that accompanies this journal and study the notation in Figure 5. The important questions to consider are the ways in which the notation provides an overview of the process and how it enables a study of the process in greater detail.

I have used picture-like elements (such as the large broken heart and the drawing of an infant and of a brick wall (therapists' at the beginning) to convey my interpretation of the emotional contents. I have treated the various nuances of Edward's screams descriptively, starting with thick, black figures that depict the screaming as noise bands, without definite pitch. On closer listening, the screams seem to change in their profiles of pitch direction (up or down) and of bandwidth (thick to thin). I have interpreted these expressions as becoming less tense toward the end. The headings ("Oh, no!," "Help!," and "I'm strangled") written over each of the three sections show my interpretation of the message Edward was communicating.

I have incorporated additional signs for several other kinds of vocal expressions. I gave the thin, infant-like voice an important role in the design of the first section, since I think it is a sign of a regression worth noticing. The verbal statements touch briefly upon both psychological and musical matters. Despite the complexity of Edward's stream

⁵ Copyright © 1977, Paul Nordoff and Clive Robbins. Permission to use the recording granted by Clive Robbins.

of sounds, patterns can be discerned that allow for notational structures that represent his characteristic elements and developments: the boxes with dotted lines and the division into three sections enclosed by different kinds of lines. Because Edward was very difficult to come into contact with (based on the description given in the book and on the sounds on the tape itself), I have especially noted when the therapist's music was particularly influencing Edward's and vice versa.

Some Concluding Remarks

It is worth noting that musicological analysis, as it is currently practiced, allows for a multitude of purposes, such as the illumination of new qualities in well-known works or the possibility of going into greater depth within single works. In the clinical setting, however, the purpose of analysis is more sharply defined:

The therapist is not simply creating an interesting notational system but rather has an overt responsibility to account for what is happening in the therapeutic process.

To notate complex improvisations with conventional notation may be like attempting to eat soup with a fork: The essence escapes and the effort has no end! Conventional notation is, however, an example of a set of signs that comprise not only pitch and duration but also tempo, well-defined shades of dynamics and their alterations and changes, and many kinds of attack.

Epistemologically, turning music that unfolds in time into writing and pictures that represent it visually allows for a special kind of reflection. Structural relations become highlighted, and the music may become better conceptualized.

In Western culture, writing has long had priority over orally transmitted traditions. Therefore, visual descriptions may work strategically to create respect for therapeutic music as well as other musics not based on compositional writing. At times, the conventional notation might have an undeserved authority, suggesting that what is outside its scope is "non-musical." Edward's screaming and crying is, however, a good example of sounds outside of musical conventions that reveal musical meaning in the therapy context. Nordoff and Robbins would probably not have undertaken music therapy with him, had they not had a sensitive ear for this.

One motivation a music therapist might have for making an elaborate graphic notation, as in the notational example for Edward, could be to study the client and the possibilities of the musical language in depth. Another purpose might be to explore new ways to share insights and exchange views with other therapists during supervision or when publishing scholarly papers.

I hope that it is clear from this article that this type of graphic notation it is not a fixed system but a field practicable on all levels and open to creative exploration and research by all who are interested in it.

References

Nordoff, P., & Robbins, C. (1977). *Creative Music Therapy*. New York: The John Day Company.

Carl Bergstrøm-Nielsen, cand. phil., is an adjunct faculty member of the Music Therapy Education Program at Aalborg University Denmark. He is practicing as a music therapist as well as a composer and performer of experimental music. He also teaches courses in improvisation practice and graphic notation at other institutions in Denmark and internationally, and has published textbooks on these subjects.

Author's Note: Thank you to Anne Winther-Rasmussen, Jane Pedersen, Niseema Marie Munk-Madsen, Tine Bang Sørensen, Thorkil Høgsbro, Sonja Paulsen, Anne Mæng, and Birgitte Jespersen for the use of the notation in Figure 3. Also thank you to Kenneth Aigen and the Editorial Staff for translation and work on the language.
